6. The total effect of these and other errors and indefensible assumptions amounts to $20 per month per line. With realistic and defensible input parameters, IAT gives no support whatsoever for Dr. Pelcovits' stated conclusion.

STRATEGIC POLICY RESEARCH

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on October 18, 2004

Jeffrey H. Rohlfs

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REPLY DECLARATION OF JEFFREY H. ROHLFS AND JOSEPH H. WEBER

EXHIBIT 1

STRATEGIC POLICY RESEARCH

EXHIBIT 1

Report of Jeffrey H. Rohlfs and Joseph H. Weber

October 18, 2004

In the initial round of this proceeding, Dr. Michael Pelcovits filed a declaration ("Pelcovits") on behalf of MCI. That declaration included a presentation of a potential deployment model, the Impairment Analysis Tool ("IAT"), and results from that model. That model purports to analyze an efficient CLEC's potential costs and revenues if it were to enter a market using a UNE-loop strategy with its own switches and to determine whether the CLEC could operate profitably. In this report, we review the IAT model and the results presented by Dr. Pelcovits.

In reviewing IAT, we are not agreeing with the underlying assumption of Dr. Pelcovits and MCI that carriers need to use UNE loops to compete with incumbents. As Verizon has explained elsewhere, the major UNE-P carriers have all decided to compete using VoIP.[1] Access for VoIP can be provided via cable modem, without using ILEC loops at all.

Potential deployment models can be used to demonstrate that competition would *not* be impaired in the absence of unbundled switching and/or dedicated transport. They do so by specifying a particular network configuration under which competition would be viable, even in the absence of the UNEs. If there is a single viable configuration, it follows that competition is not impaired. Competition would be all the less impaired if it were also viable using other network configurations.

The converse of this logic does not hold. A potential deployment model, such as IAT, cannot, even in principle, demonstrate that competition *would* be impaired in the absence of unbundled switching and/or transport. At most, such a model could demonstrate that competition *using one particular network configuration* is not viable. It says nothing about the viability of competition under alternative network configurations, including inter-modal alternatives.

Furthermore, even in the network configuration posited in IAT, Dr. Pelcovits falls far short of demonstrating that competition would be non-viable. He asserts that IAT demonstrates "that entry is not likely to be profitable under a wide range of circumstances in virtually all markets." (Pelcovits at ¶ 107.) In reality, the IAT contains a number of errors and indefensible assumptions that undermine Dr. Pelcovits' conclusion. Among other things, the model:

[1] *See* Comments of Verizon, pp. 95-99, 106-114.

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- Substantially underestimates CLEC revenues by assuming they will be based on ILEC revenues, even though the current prices of the actual calling plans CLECs offer today in the marketplace yield significantly higher revenues;
- Assumes customer churn rates that are significantly higher than those CLECs currently experience;
- Assumes costs for DLC equipment that are too high; and
- Improperly analyzes the profitability of operating in an additional wire center by looking at fully allocated costs rather than incremental costs.

The total effect of these and other errors and indefensible assumptions amounts to $20 per month per line. With realistic and defensible input parameters, IAT gives no support whatsoever for Dr. Pelcovits' stated conclusion.

IAT may have further serious defects, but our ability to analyze the model was limited for several reasons. First, Dr. Pelcovits includes only a single model run for Tennessee, and most of the data underlying that run are not disclosed. Consequently, the model run yields no numerical estimates of total costs, revenues, or profitability. Dr. Pelcovits discusses purported results of his model only for Pennsylvania—a curious geographical mismatch, since the presented model is only for Tennessee. Dr. Pelcovits did not file the actual Pennsylvania model in either this proceeding or in the Pennsylvania proceeding in which he previously presented the results. Consequently, it is not possible to replicate his results. Moreover, states differ markedly, so the Pennsylvania results could not, in any event, be reasonably extrapolated to the other 49 states and the District of Columbia. Finally, if we had more time, we might have uncovered additional defects in the model.

1. SPECIFIC MODEL CRITICISMS

1.1. REVENUE INPUTS

CLECs typically serve the mass market by offering packages of telecommunications services. One option, typically offered to both business and residential customers, is a full flat-rate plan, which includes:

- Unlimited local calling;
- Several vertical services; and
- Unlimited long-distance calling within the contiguous United States.

Examples of full flat-rate plans are MCI's Neighborhood Complete and Business Complete Unlimited. According to MCI's website, the residential plan includes unlimited local and long-distance minutes, plus the following bundled features: Caller ID, Call Waiting, Voicemail, 3-way Calling and Speed Dialing. The business plan includes unlimited local minutes and long-distance

calling, Caller ID, Call Waiting, 3-Way Calling, Speed Dial and Call Forwarding. Hunting/rollover service is also included as a feature, but it cannot be used in conjunction with Call Waiting. Additional lines can be added for an extra monthly fee.

CLECs typically also offer a lower-priced option, which includes unlimited local calling and some vertical services. The plans (especially residential) often include a certain number of minutes of "free" long-distance usage within the contiguous United States. Long-distance usage beyond the included minutes (if any) is billed at a fixed per-minute rate.

Examples of these lower-priced options are MCI's Neighborhood Advantage 200 and its Business Complete Value. According to MCI's website, Neighborhood Advantage includes unlimited local minutes and 200 long-distance minutes with additional long-distance minutes at a low per-minute rate. In addition, three features are included: Call Waiting, Caller ID and 3-Way Calling. Business Complete Value includes unlimited local and metered long-distance minutes, and the same features as Business Complete Unlimited.

Typical prices for the MCI plans are as follows:

- Full flat rate business: $59.99 per month;
- Lower-priced option business: $39.99 per month with per minute rates of $0.06 per minute for long-distance usage;
- Full flat rate residential: $49.99;
- Lower-priced option residential: $29.99 to $43.99 per month including 200 long-distance minutes with per minute rates of $0.05 per minute for additional long-distance usage.

With all these plans the CLEC additionally derives approximately $6.50 from subscriber line charges,[2] as well as additional revenues from international calls and from vertical services beyond those included in the plans.

The revenues that should be used in a potential deployment model are actual CLEC revenues, which come largely from plans such as those described above. Those revenues indicate what CLECs actually charge in today's (holdover) UNE-P environment. In this framework, the potential deployment model can determine whether an efficient CLEC would be viable offering those same services at those same prices without UNE switching (and possibly without UNE dedicated transport). If the CLEC could operate profitably under these conditions, one can conclude that competition would not be impaired in the absence of the UNEs.

[2] MCI website at http://consumer.mci.com/TheNeighborhood/res_local_service/jsps/default.jsp.

MCI has, however, rigged IAT so that the model cannot address this issue. Instead of using actual CLEC revenues, IAT posits that average CLEC revenues are based on average ILEC residential revenues, as measured by the TNS Bill Harvesting Study.

Dr. Pelcovits' rationale for this approach is his statement, "The ILEC's existing rates represent the highest conceivable rates that a CLEC might hope to charge after entry, and . . . it is not really plausible that those rates could be maintained after UNE-L competition becomes established." His default assumption is that average residential revenues are 10 percent lower than the ILEC average.

Aside from the obvious fact that the prices that CLECs already are charging are the most direct evidence of what rates they "might hope to charge after entry," there are *numerous* other problems with Dr. Pelcovits' reasoning:

1. It assumes that CLECs will go after the ILECs' entire customer base. In reality, even with UNE-P available, CLECs go after only a subset of ILEC customers; namely, those customers who find the CLEC packages attractive. Those packages, especially the full flat-rate plans, are targeted to customers with higher than average revenues.[3]
2. CLEC packages include many elements at no additional charge. They also include elements at much lower incremental prices than the ILEC's. Under these circumstances, one would expect CLEC customers to increase their usage significantly above what it was when they were ILEC customers. [4]
3. Customers prefer the convenience and certainty of flat-rate packages.[5] Thus, one would expect them to be willing to pay more for an appropriate flat-rate package than they currently pay under the traditional rate structure with long-distance usage charges.
4. Our research indicates that the prices of CLEC plans have not significantly changed in the past year, during which ILECs have introduced their own flat-rated calling plans.[6]

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[3] *See, e.g.*, Initial Panel Testimony of Verizon New York Inc. on the New York Competitive Marketplace, Members of the Panel: Kenneth Gordon, William E. Taylor (May 15, 2001), State of New York Public Service Commission, *Proceeding on Motion of the Commission to Consider Cost Recovery by Verizon and to Investigate the Future Regulatory Framework,* Case 00-C-1945, which documents that in New York, customers lost to CLECs had significantly higher than average revenues (before they were lost), at pp. 126, 132.

[4] *See e.g.*, Andrew Odlyzko, "Internet Pricing and the History of Communications," *Computer Networks 36* (2001), pp. 493-517. He notes that U.S. local residential telephone pricing is predominately flat rate while local telephone pricing is metered in most other countries. U.S. local usage volumes are significantly higher than comparable usage in countries with metered local telephone pricing. Similarly, cellular usage per phone was relatively stable until flat-rate pricing was introduced by AT&T in the fourth quarter 1998. As other providers quickly followed, usage levels increased dramatically.

[5] The huge success of flat-rate wireless packages is an important case in point.

5. The TNS study is entirely residential, but IAT uses it, with no justification whatever, to derive its revenue estimate for small business. It is not obvious why the TNS results should have any relation at all to average revenues of CLEC business customers.

Most importantly, the whole IAT modeling of revenues substitutes speculation for facts.

Conservatively low estimates of average CLEC revenues can be calculated from the actual prices of CLEC plans as follows:

- Although CLECs market the full flat-rate plans far more intensively than the lower-priced option, we conservatively assume that they sell equal numbers of the two types of plan;
- We use the lower end of the range for the lower-priced residential option;
- We do not include any residential long-distance revenues in the lower-priced option for usage above the included amount;
- We conservatively assume that business customers that choose the lower-priced option have average long-distance usage of 200 minutes per month (the amount of usage included in the lower-priced residential plan).
- Although CLECs typically sell more business lines than residential, we assume that the two are equal.

Under these assumptions, CLEC average revenues per line are $58.77 per month. This includes $4.28 taxes[7] and $6.50 for subscriber-line charges, which are typically passed on to the customer.

This amount can be compared to average TNS revenues of $47.52 per line.[8] Thus, Pelcovits underestimates revenues by at least $11.25 per month. The underestimate is probably significantly greater, given the conservative assumptions used to generate the estimate of $58.77 per month.

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[6] MCI business and residential flat-rate and low-option prices were collected from MCI's website in October 2003 and October 2004 for major cities in all Verizon states.

[7] Taxes and other charges of $4.28 for local service reported in Table 1.1 Residential Rates for Local Service in Urban Areas (as of 10/23/03), *Reference Book of Rates, Prices and Indices and Household Expenditures for Telephone Service*, FCC.

[8] Average residential revenues according to the TNS study are $48.00 per month (local exchange plus interexchange carriers). *See* FCC, *Trends in Telephone Service*, Industry Analysis and Technology Division, Wireline Competition Bureau (May 2004), Table 3.2. IAT multiplies average revenues by 0.9 (base values from Sims!B9 and Sims!B10). Then business revenues are multiplied by 1.2 (Inputs!B31). Assuming that the CLEC has equal numbers of residential and business customers, the average TNS revenues get multiplied by 0.99; calculated as 0.5 * 0.9 + 0.5 * 0.9 * 1.2 = 0.99.

1.2. CUSTOMER RETENTION

IAT assumes that the average customer life (with one carrier) is 10 to 20 months. This corresponds to monthly churn rates of 5 percent to 10 percent.

Historically, CLECs reported churn rates on the order of 6 percent per month, corresponding to a customer life of 16.7 months—toward the upper end of the IAT range. Recently, however, CLECs have achieved much lower churn rates, as shown in Table 1.

Table 1
Recent Churn Rates Reported

	Period reported	As reported	Periodicity	Monthly Churn	Source
CT Communications	1Q04	1.0%	Monthly	**1.0%**	10Q
ChoiceOne	3Q03	1.4%	Monthly	**1.4%**	FatPipe*
SureWest	2Q04	1.8%	Monthly	**1.8%**	10Q
Mpower	4Q03	1.8%	Monthly	**1.8%**	10K
Z-Tel	2Q03	7.0%	Quarterly	**2.4%**	Fatpipe*
PacWest	2002	8.2%	Annual	**0.7%**	Fatpipe*
Allegiance	1Q04	2.9%	Monthly	**2.9%**	10Q
Average				**1.7%**	

* Fatpipe: Finding the leaks, A Closer Look at RBOC Win-back Numbers, by Kelly Kirkendoll Shafer (September 22, 2003).

Of the CLECs listed in Table 1, CT Communications and Z-Tel serve primarily residential customers. Their actual churn rates—1.0 percent per month and 2.3 per month, respectively—are conservative upper bounds for the churn rate that an efficient CLEC that serves residential customers could achieve.

PacWest and Mpower serve a combination of residential and small business customers. Their churn rates are 0.7 percent per month and 1.8 percent per month respectively.

The remaining CLECs—SureWest, Allegiance and ChoiceOne—serve primarily small business customers. The churn rates of these companies are 1.8 percent per month, 2.9 percent per month, and 1.4 percent per month respectively. The actual churn rates of these CLECs are a conservative upper bound on the churn rate of an efficient CLEC that serves small business customers.

In light of the information in Table 1, IAT's assumed customer life of 10 to 20 months seems unreasonably short. A considerably longer customer life should be assumed.

Furthermore, Dr. Pelcovits, himself (at ¶ 81) discusses the reasons that one would expect churn rates to be significantly lower under UNE-L than under UNE-P. In particular, churn is more costly under UNE-L than under UNE-P. Under UNE-L, churn involves the costs of hot cuts, other non-recurring loop costs, and the CLEC's own costs associated with hot cuts. For this reason, CLECs have much greater incentive to minimize churn under UNE-L than under UNE-P. IAT essentially assumes that the CLEC does not respond at all to this incentive—inaction that is wholly inconsistent with the CLEC's being efficient.

If a churn rate of 3 percent per month were assumed (average customer life of 33 months), the estimated profitability would increase by $6.64 per month per line.[9] In light of the data in Table 1, an estimated churn rate of 3 percent per month is conservatively high.

1.3. DLC EQUIPMENT COSTS

IAT inputs include a "fixed cost" for DLC equipment, which in fact varies substantially with the number of lines, and then an additional cost of $300 to $348 per channel card, each of which serves 4 DS0 lines or one DS1 line.[10] If, as the model code indicates, the total costs of the system are calculated as the sum of the fixed cost and the channel card costs, the "fixed cost" entries should be very much lower than those shown. As best we can determine, the numerical entries in the input cells identified as "fixed" on the Input sheet of the model for DLC systems really are total system costs, including both fixed and channel card costs.[11]

Because the actual fixed cost of DLC systems is quite small, the cost of the channel cards, when multiplied by the number of lines, is very close to what is identified in the IAT input as the

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[9] This is calculated as (A + B + C) * (1/D – 1/E), where

A = the base value for customer acquisition cost of $130 (Sims!B11)

B = the Non-Recurring First charge for 2-wire analog loop of $42.64 (Tariff tables — TN!F4); The first charge is appropriate, since loops, especially residential, are usually installed one at a time or in very small groups.

C = the base value of $10 for the CLEC's internal cost of accepting a hot cut (Sims!B8)

D = the base customer life of 15 months (Sims!B7); and

E = 33 months, a conservatively low estimate of customer life, as discussed in the text.

[10] Inputs!D117, Inputs!E117, and Inputs!F117.

[11] Information on the cost of DLC systems has been filed with the FCC and state commissions by several RBOCs, AT&T and WorldCom. Although these estimates differ to some extent, they all yield total costs fairly close to the "fixed cost" entry in the IAT input sheet. Adding the line card approximately doubles the cost, putting the costs completely out of line with any other submission.

"fixed cost," leading to a modeled cost that is about twice the real cost. It is likely that this error results from a simple misunderstanding of what is included in the "fixed cost" as used in the model. Since the costs given as "fixed" are actually the total system costs, this error can be corrected by removing the card costs. The effect of removing the card costs, using the monthly recurring cost factor given in the input page of the IAT model, and using the $300 per card cost of the larger systems, is $1.67 per line per month.[12]

1.4. PROFITABILITY BY WIRE CENTER

IAT develops estimates of profitability by wire center. The model's methodology, however, is based on fully allocated costs. Such a methodology cannot, even in principle, demonstrate that it would be unprofitable for a CLEC to operate at any particular wire center. An efficient CLEC's decision whether to operate in a particular wire center must be based on *incremental* profitability—not any allocated cost measure. A CLEC would not be efficient if it made the decision whether to operate at particular wire centers on the basis of fully allocated costs.

This approach wrongly assumes that an efficient CLEC would make a decision whether to serve an additional wire center by comparing the prospective revenues against the fully allocated costs of serving that wire center. But that is incorrect: An efficient CLEC, having already incurred a variety of fixed costs, would examine whether the incremental revenues from operating in an additional wire center in that LATA exceed the *incremental* operating costs of serving that wire center.

Apart from fixed costs of serving the mass market, incremental costs may diverge from fully allocated costs if the CLEC already serves enterprise customers at the wire center in question. In that case, the incremental collocation costs could be considerably lower than the fully allocated costs. Incremental transport costs may be lower than fully allocated costs if transport facilities can be shared with enterprise traffic.

If a CLEC were profitable under a fully-allocated cost basis, it would necessarily be profitable on an incremental basis. The converse is not true. If a wire center is *unprofitable* on a fully-allocated cost basis, it may nevertheless be profitable on an incremental basis.

In aggregate, a viable CLEC operation must, of course, cover fixed costs, as well as incremental costs. But this calculation must be made on an aggregate basis, not wire center by wire center. IAT does not make these profitability calculations on the economically correct incremental-cost basis. Hence, all the profitability estimates are biased downward.

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[12] The monthly error is calculated by taking the lowest cost per card ($300 in Inputs!D115, Inputs!E115, Inputs!F115), dividing by 4 lines per card, and multiplying by the monthly cost factor for circuit equipment (0.02225 in Inputs!E40).

1.5. RANDOM SIMULATIONS

IAT default values are given for inputs, but they may be varied by the model user. Some input parameters are specified as ranges. Where input parameters are specified as ranges, the model performs simulations, in each of which parameter values are randomly chosen within the specified intervals. This methodology of random simulations is wholly unsuited to this proceeding, because a model outsider has no way to verify that the simulations were truly random. If one tries to reproduce the results, entirely different answers are given by the random-number generator. If IAT is to be at all useful, it must generate results that are reproducible.

1.6. TOTAL EFFECT OF IDENTIFIED ERRORS AND INDEFENSIBLE INPUT VALUES

The total effect of the identified errors and indefensible input values amounts to $20 per month per line—and this includes only the effects that we could reasonably quantify. With realistic and defensible input parameters, IAT gives no support whatsoever for Dr. Pelcovits' stated conclusion.

Furthermore, as stated above, even if competition were non-viable in the particular network configuration specified in IAT, there would remain the possibility—indeed, the fact—that competition is viable using alternative network configurations, including inter-modal alternatives. Pelcovits' testimony cannot, even in principle, demonstrate that competition would be impaired in the absence of unbundled switching and/or dedicated transport.

REPLY DECLARATION OF JEFFREY H. ROHLFS AND JOSEPH H. WEBER

EXHIBIT 2

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Unbundled Access to Network Elements	)	WC Docket No. 04-313
	)	
Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers	)	CC Docket No. 01-338

REPLY DECLARATION OF JEFFREY H. ROHLFS AND JOSEPH H. WEBER SUBMITTED IN SUPPORT OF THE COMMENTS OF THE VERIZON TELEPHONE COMPANIES

EXHIBIT 2
CV of Jeffrey H. Rohlfs

STRATEGIC POLICY RESEARCH

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Received an A.B. degree from Amherst College and a Ph.D. in Economics from MIT. He has taught economics at the Stanford Graduate School of Business.

Dr. Rohlfs is a founding principal of Strategic Policy Research, Inc. ("SPR") and has been a consultant since 1983. He is an economist who specializes in the telecommunications and mass media industries. He has numerous publications, including theoretical, empirical and policy analyses.

Dr. Rohlfs has consulted on telecommunications and public policy for a variety of clients with regard to ground rules for telecommunications competition, cost estimation, interconnection pricing, regulatory reform, restructuring and privatization in many countries, and policies regarding spectrum and mobile telecommunications.

Prior to his career in consulting, Dr. Rohlfs spent 14 years at Bell Labs, rising to Department Head of Economic Modeling Research. While at Bell Labs, Dr. Rohlfs wrote a seminal paper on the theory of network externalities. This theory has been widely cited and applied to universal-service policy and technical standards. Dr. Rohlfs also wrote a seminal empirical analysis on optimal telecommunications pricing and rate rebalancing.

From 1979 to 1981, Dr. Rohlfs was Manager of Microeconomic Analysis at AT&T. He provided analytical support for AT&T's regulatory and public affairs efforts.

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His book, *Bandwagon Effects in High-Technology Industries,* published by MIT Press, was a finalist for the Book-of-the-Year Award in its field.

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TESTIMONIES

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